



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,536	12/04/2003	Yasushi Shioya	03560.003406	5946
5514	7590	12/12/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			BROWN, JAYME L	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			1733	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,536

Applicant(s)

SHIOYA ET AL.

Examiner

Jayme L. Brown

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-10, and 12-14 is/are rejected.
- 7) ☒ Claim(s) 2 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/6/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 2/6/04 has been considered by the examiner.

### *Drawings*

2. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). **Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.** The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 27, 1040. **Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.** Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1" has been used to designate both rear plate and insulating member. **Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.** Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The disclosure is objected to because of the following informalities:  
On page 22, line 15, "side wall 1017" should be changed to - - side wall 1016 - -.  
Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 1-5 are unclear by reciting "A method for manufacturing an image display device" in the preamble without reciting the formation of an image display device in the body of the claims. It is recommended to amend claim 1, line 12 to - - second substrate together to form an image display device - -.

b. Claims 6-9 are unclear by reciting "A method for manufacturing an image display device" in the preamble without reciting the formation of an image display device in the body of the claims. It is recommended to amend claim 6, line 12 to - - first substrate and the process of bonding the first substrate and second substrate together to form an image display device - -.

c. Regarding claims 1 and 6, it is unclear where the plate spacer is positioned in reference to the first and second substrates. It is recommended that "having the plate spacer fixed thereto" be changed to - - having the plate spacer fixed in between the first and second substrates - -.

d. Regarding claim 3, it is unclear as to whether the elastic member is only at one end of the plate spacer. It is recommended that "at the end" be changed to - - at each end - -.

e. Regarding claim 7, line 2, it is recommended that "the end of the length of the plate spacer" be changed to - - the opposite ends of the plate spacer - - to keep consistent with the rest of the claims.

f. Claim 7 recites the limitation "the support member" in line 3. There is insufficient antecedent basis for this limitation in the claim.

g. Claim 8 recites the limitation "the support member" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitsutake et al. (JP 2000311633; See U.S. Patent 6,803,715 for English translation).

Regarding claim 1, Mitsutake et al. discloses a method for manufacturing an image display device, comprising the steps of: fixing opposite ends of a plate spacer (1020) to a first substrate while disposing the plate spacer on a surface of the first substrate (1011, 1015) such that a length of the plate spacer is parallel to the surface of the first substrate, and tightly bonding the first substrate and second substrate (1017) together through the plate spacer while disposing the second substrate to face the first substrate having the plate spacer fixed in between, wherein the method further

Art Unit: 1733

comprises the step of forming a space between the plate spacer and the surface of the first substrate between the process of fixing the plate spacer to the first substrate and the process of bonding the first substrate and the second substrate together (Abstract; Column 2, lines 20-25; Column 5, line 38 – Column 6, line 21; Column 11, lines 13-51; Figures 1, 3, and 6).

Regarding claim 10, Mitsutake et al. discloses a method for manufacturing an image display devices, comprising the steps of: providing a first substrate with an electron emission source (1011, 1015), providing a second substrate having an imaging source (1017), fixing opposite ends of a plate spacer (1020) to the first substrate while disposing the plate spacer on a surface of the first substrate such that a length of the plate spacer is parallel to a surface of the first substrate, forming a space between the plate spacer and the surface of the first substrate, and bonding the first substrate (1015), the second substrate (1017), and side walls (1016) together and forming a vacuum image display device (Abstract; Column 2, lines 20-25; Column 5, line 38 – Column 6, line 21; Column 11, lines 13-51; Figures 1, 3, and 6).

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al. (U.S. Patent 5,811,927).

Regarding claim 1, Anderson et al. discloses a method for manufacturing an image display device, comprising the steps of: fixing opposite ends of a plate spacer (102) to a first substrate while disposing the plate spacer on a surface of the first substrate (130) such that a length of the plate spacer is parallel to the surface of the first

Art Unit: 1733

substrate, and tightly bonding the first substrate and second substrate (164) together through the plate spacer while disposing the second substrate to face the first substrate having the plate spacer fixed in between, wherein the method further comprises the step of forming a space between the plate spacer and the surface of the first substrate between the process of fixing the plate spacer to the first substrate and the process of bonding the first substrate and the second substrate together (Abstract; Column 2, lines 9-14; Column 4, lines 24-43; Column 6, line 43 – Column 7, line 4; Column 8, lines 4-17; Figures 7 and 8).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsutake et al. (JP 2000311633; See U.S. Patent 6,803,715 for English translation), Anderson et al. (U.S. Patent 5,811,927), or the Admitted Prior Art.

Regarding claim 6, Mitsutake et al., Anderson et al., and the Admitted Prior Art all teach a method for manufacturing an image display device, comprising the steps of: fixing opposite ends of a plate spacer to a first substrate while disposing the plate spacer on a surface of the first substrate such that a length of the plate spacer is parallel to the surface of the first substrate, and tightly bonding the first substrate and



Art Unit: 1733

second substrate together through the plate spacer while disposing the second substrate to face the first substrate having the plate spacer fixed in between.

Mitsutake et al., Anderson et al., and the Admitted Prior Art are all silent toward the step of carrying the first substrate having the plate spacer fixed thereto. One skilled in the art would have readily appreciated moving the first substrate prior to the bonding of the first and second substrates together, since these steps are commonly performed in two different areas or chambers in the art. Therefore, transport from one area to another is readily recognized by one of ordinary skill in the art in order to continue the process. It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry the first substrate to the area where the bonding of the first and second substrates takes place in the method of Mitsutake et al., Anderson et al., or the Admitted Prior Art, as is considered well known in the art to move the substrate between stations for processing, only the expected results would be attained.

Regarding claim 7, Mitsutake et al. (Column 11, lines 13-15), Anderson et al. (Abstract), and the Admitted Prior Art all teach that the process of fixing the opposite ends of the plate spacer to the first substrate is performed by bonding the support member provided at the end of the plate spacer to the first substrate.

Regarding claim 8, one skilled in the art would have readily appreciated having the support member be an elastic member to keep the shape and structure of the spacer when the spacer is under pressure, so that the spacer prevents the rear plate and/or face plate from deforming. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide elastic members for the support

Art Unit: 1733

members in the method of Mitsutake et al., Anderson et al., or the Admitted Prior Art in order to prevent deformation of the rear and/or face plates. Only the expected results would be achieved.

13. Claims 3-4 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (U.S. Patent 5,811,927) or Mitsutake et al. (JP 2000311633; See U.S. Patent 6,803,715 for English translation) in view of Sakamaki et al. (U.S. Patent 6,836,304).

Regarding claims 3-4 and 12-13, Anderson et al. and Mitsutake et al. are relied upon for the teachings above. Anderson et al. and Mitsutake et al. are silent toward the process of forming a space being performed by an elastic member provided at the end of the plate spacer, and the elastic member being made of shape-memory alloy.

One skilled in the art would have readily appreciated providing elastic members at the ends of the plate spacer, such as in the form of an adhesive as shown, for example by Sakamaki et al. (Column 10, lines 18-25) to prevent the substrates from being separated when stresses are exerted on them. Also, one skilled in the art would have readily appreciated using elastic members in order to keep the shape and structure of the spacer and help it absorb some of the stresses. One skilled in the art would have readily recognized that shape-memory alloy is a conventional elastic material that would help maintain the original shape and structure of the spacer. It would have been obvious to one of ordinary skill in the art to provide elastic members made of shape-memory alloy at the ends of the spacer plate in the method of Anderson

Art Unit: 1733

et al. or Mitsutake et al. as suggested, for example, by Sakamaki et al. in order to protect against stress.

14. Claims 5, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (U.S. Patent 5,811,927) or Mitsutake et al. (JP 2000311633; See U.S. Patent 6,803,715 for English translation) in view of Iguchi et al. (U.S. Patent 6,483,235).

Regarding claims 5, 9, and 14, Anderson et al. and Mitsutake et al. are relied upon for the teachings above. Anderson et al. and Mitsutake et al. are silent toward the process of fixing the plate spacer to the first substrate including a tension acting along the length of the plate spacer being loaded on the plate spacer in advance.

Iguchi et al. is directed to an image display apparatus that has an anode substrate and a cathode substrate with spacers in between. Tensions are added to the spacers in the lengthwise direction, so that the spacers are elongated. Therefore, the spacer prevents distortion and fracture even if it is subjected to heat treatment (Abstract; Column 2, lines 61-67). One skilled in the art would have readily appreciated adding tension to the plate spacer so that it better maintains its shape under heat and pressure and better prevents the deformation of the two substrates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add tension to the plate spacer in the method of Anderson et al. or Mitsutake et al. as suggested by Iguchi et al. in order to prevent deformation.

***Double Patenting***

15. Claims 1, 3-10, and 12-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-17 of copending Application No. 10/622,432 in view of Mitsutake et al. (JP 2000311633) and further in view of Sakamaki et al. (U.S. Patent 6,836,304) and Iguchi et al. (U.S. Patent 6,483,235). All the limitations of claims 1, 6, 7, and 10 in the instant application are encompassed by the claims of copending Application No. 10/622,432, except for the step of bonding the first and second substrates together and carrying the first substrate. It would have been obvious to bond the substrates together and carry the first substrate as shown, for example, by Mitsutake et al. in paragraphs 9 and 12 above. Regarding claims 3-5, 8-10, and 12-14 in the instant application, it would have been obvious to form a space with an elastic member or load a tension on the plate spacer as shown, for example, by Sakamaki et al. and Iguchi et al. in paragraphs 13 and 14 above.

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

16. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 1733

17. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. In light of no additional pertinent prior art, the following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest the claimed method of forming a space between the plate spacer and the surface of the first substrate by deforming the first substrate.

Mitsutake et al. teaches that the spacer can be warped to make a space (Figure 6), but the reference fails to teach or suggest that the first substrate is deformed to make the space.

Iguchi et al. teaches that there is apprehension that cathode and anode substrates will be broken or warped under high pressure. This is considered a problem that is prevented by using a spacer that can prevent distortion and fracture and doesn't lower the brightness of the displayed image (Column 1, lines 37-45; Column 2, lines 35-67). Iguchi et al. fails to teach or suggest that the first substrate is deformed, and in fact teaches away from deforming the substrate.

Kuroda et al. (U.S. Patent 6,265,822) is directed to a an electron beam apparatus that has a rear plate, side walls, and a face plate that make a hermetically sealed container which maintains the inside of the display panel in a vacuum state. There are spacers in the vacuum container or envelope that prevent the vacuum envelop or

Art Unit: 1733

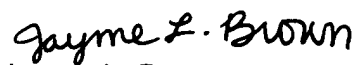
container from being broken or deformed by the atmospheric pressure (Abstract; Column 7, line 28 – Column 8, line 8). The reference fails to teach or suggest that the first substrate is deformed to make a space, and also teaches away from deforming the substrate.


### ***Conclusion***

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jayme L. Brown** whose telephone number is **571-272-8386**. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jayme L. Brown

  
GLADYS J.P. CORCORAN  
PRIMARY EXAMINER